

(19) BUNDESREPUBLIK DEUTSCHLAND

DEUTSCHES



PATENTAMT

WEST GERMANY
GROUP...144
CLASS....8
RECORDED

DT 2709019 A1

(11)
(21)
(22)
(23)

Offenlegungsschrift 27 09 019

Aktenzeichen: P 27 09 019.3
Anmeldetag: 2. 3. 77
Offenlegungstag: 8. 9. 77

(30)

Unionspriorität:

(32) (33) (34)

4. - 3. 76 USA 663871

65328Y/37

A60 E19 F06

A.I.C. 04.03.76

DT 2709019

ALLIED CHEMICAL CORP

04.03.76-US-663871 (08.09.77) D06m-15/52

Hydrophilising treatment for hydrophobic fibres and textiles - by impregnating with a hydrophilic additive, a polyfunctional reactant and a nitrogenous catalyst, and heating

Fibrous materials such as textile fabrics are treated with a hydrophilic additive (I), a polyfunctional reactant (II) and a nitrogenous catalyst (III), and heating the material to cause reaction between the (I) and (II).

(I) is (a) a cpd. with > 2 ether gps. and > 2 OH gps. per mol, and/or (b) cpd. with divalent-NHCO- gp(s) and one or more OH gps per mol, and/or (c) cpd. with > 2 -CH(OH)- gps. and one or more additional OH gp. per mol. The poly-functional additive (II) has > 2 epoxide gps. and/or isocyanate gps. per mol. The catalyst (III) is pref. a tert. amine, aminoacids, caprolactam, or mixts.

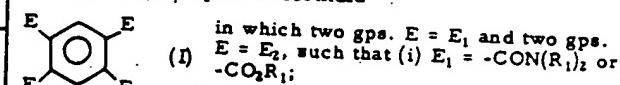
USE/ADVANTAGE

The process is esp. useful for the treatment of polyethylene terephthalate fibres and textiles to render them wettable by water and to improve the antistatic properties. The process does not cause deterioration in fibre strength and is more efficient than known fibre grafting treatments using high energy radiation. The treatments are durable and do not cause discolouration of the textile during subsequent pro-

cessing.

MATERIALS

Pref. (I) include cpds. of formula



$$\text{R}_1 = \left[(\text{CH}_2)_{\text{P}_1} - (\text{CH})_{\text{P}_2} - (\text{CH}_2)_{\text{P}_3} - \text{O} \right] - \text{T}_1; \text{ m} = 0-10; \text{ P}_1, \text{ P}_2$$

$$\text{and } \text{T}_2 = 0 \text{ or } 1; \text{ T}_1 = \text{H or OH}, \text{ T}_1 \text{ or OT}_1; \text{ and}$$

$$\text{T}_1 = \left[(\text{CH}_2)_{\text{P}_5} \text{CH} - (\text{CH}_2)_{\text{P}_6} - \text{O} \right] - \text{A}_1, \text{ where m}' = 0-10, \text{ P}_4$$

$$\text{and } \text{P}_5 = 0 \text{ or } 1; \text{ A}_1 = 1-3 \text{ C alkyl gp.; A}_2 = -\text{X or } -\text{OX}; \text{ X = H or } 1-3 \text{ C alkyl; and (ii) } \text{E}_2 = -\text{CO}_2\text{H or } -\text{CO}_2(\text{CH}_2)_{x_1}(\text{CHOH})_{x_2}\text{CH}_2\text{Q}; x_1 \text{ and } x_2 = 0 \text{ or } 1 \text{ and Q = H or OH; such that } \text{P}_1 + \text{P}_2 + \text{P}_3 > 2; \text{ P}_4 + \text{P}_5 > 1; \sum \text{m} > 2; \text{ if Q = OH, } x_1 \text{ and } x_2 = 1; \text{ and } \geq 1 \text{ gp. E = OH.}$$

Typical polyfunctional additives (II) are

E(7-A34, 10-A14, 10-C2C, 10-C3, 10-C4C, 10-D3, 10-E2, 10-E4) F(3-C5, 3-C1).

DT 2709019+

BEST AVAILABLE COPY
19/11/81



DEUTSCHES PATENTAMT

WEST GERMANY
GROUP...144
CLASS....8....

DT2709019

<p>1,2,4-C₆H₃(COCH₃)₂-CH₃ and Cpd's.</p> <p>using tribenzyllamine as catalyst, and curing for 10 mins. at 160°C, the fabric had a charge loss time of 810 sec., a wetting time of 7 sec. where A = -OC₆H₄CH₂CH₂CO-</p> <p>or -O-C₆H₄-C(CH₃)₂-CH₃-O-; or di- or triisobutylmalonate (so-</p> <p>The (I) and (II) axis applied to the fabric from ap, or organic medium, pre, in a ratio of 2:1 to 1:3, together with 0.1-5 mol % (on I+II) of the catalyst. The fabric is treated until the reactants have been absorbed into the fibers, which (15-40°C). The treated fabric is then heat treated e.g., for 5 sec., to 240 mins. at 90-230°C to cause reaction between the (I) and (II).</p>	<p>EXAMPLE</p> <p>Dacron, (RTM) fabrics treated with various combinations of I/II/III. Thus the untreated fabric had a charge loss time of > 1800 sec. After treatment with a combination of I, II, III, a wetting time of > 360 sec. And a wetting time of 1.2 inch. After treatment with a combination of I, II, III, a wetting time of > 360 sec. And a wetting time of 1.2 inch.</p> <p>(I), E₁ = -CO(C₆H₄CO)₂CH₂ and E₂ = -CO₂CH₂CH₂CO-</p> <p>(II) a reaction CH₃-CHC₆H₄-OCH₂CH₂CH₂CO-</p>
--	---

54) Bezeichnung: Verfahren zur Behandlung eines Fasergegenstandes

(7) Anmelder: Allied Chemical Corp., Morristown, N.J. (V.St.A.)

Vertreter: Weber, D., Dipl.-Chem. Dr rer. nat.; Seiffert, K., Dipl.-Ing.

Erfinder: Mares, Frank; Whinney, Leanne; Thiel, Anja; Münch,

(12) Erfinder: Mares, Frank,
N.J. (V.St.A.)

BEST AVAILABLE COPY

8/11567